POLAR BEAR DENNING SURVEY

WAGER BAY

1978

Northwest Territories Resources, Wildlife & Economic Development

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N.W.T. WILDLIFE SERVICE
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INTRODUCTION

A survey was undertaken from 6 - 19 March 1978 to follow up work done by Denis Ayotte in March 1977.

The purpose of the survey was to do reconnaissance to determine whether polar bear (Ursus maritimus) denning occurred on the south shore of Wager Bay. The area we intended to cover was large, so routes were chosen to find the most promising denning locations; then we would concentrate on these areas.

METHODS

The base camp was located at the same location as last year on a small lake ($65^{o}13'N$ and $88^{o}59'W$) about 19 km south of the Paliak Islands. The reasons for selecting this spot were as follows:

1. to survey a broad range in a potential denning area;
2. to prevent fog (if near coastline) from hampering survey time;
3. to minimize camp damage by remaining away from possible bear activity;
4. for better radio reception - higher elevation;

5. to ensure a fresh water supply;

6. there was an appropriate landing strip.

Our equipment which consisted of four snow machines, two komatiks, camp supplies, tents, six 45 gal drums of gasoline and fuel oil, and other equipment was flown to the site in three Twin Otter loads on 4 and 5 March 1978. Four assistants helped with the project. They were Luke Siksik and Joseph Nattar of Rankin Inlet, Hugh Ungungai of Baker Lake and Lee Mimialik of Chesterfield Inlet. A dog named King accompanied us.

On 6 and 7 March we made wide swings by snow machine to the east and west of the camp along the bay shore. A bad storm and high wind then prevailed until March 14, when the weather cleared and one team (Ungungai and Nattar) were able to make a trip up the southwest side of the bay. I made a short trip towards the bay to a small area close to camp. On 15 and 16 March we concentrated on the area east of the camp. All together in 5 days of travel, we accomplished close to 1,000 km throughout the south side of Wager Bay.

Weather was a big factor again this year (Table 1). A total of 5 days travelling with 9 days weathered out

took up the 2 week stay at Wager Bay. Gasoline and fuel left over were again cached at the site; this totals 120 gal. of gasoline and 30 gal. of fuel oil. This fuel and gas could be used next year for a similar project.

RESULTS

Tables 2 to 6 show tracks and den sightings recorded during the survey. Figure 1 shows the route taken and the locations of the sightings.

I had intended to start on the Wager Bay shoreline and work back inland each day up to the third day. I would then retrace the routes taken during the previous 3 days to check for new signs of moving bears. When this was accomplished, I had intended to start in a new area and follow the same procedure. The weather prevented this and when we were able to travel after the storm we covered new areas and tried to retrace areas we had done before.

On 6 and 7 of March we recorded many tracks of moving bears, both single adults and adults with newborn cubs. A total of four dens was recorded. One was occupied by a female and two cubs, one had recently been

Table 1. Weather conditions for 4-19 March 1979, Wager Bay area, N.W.T.

Date (March 1977)	Days surveyed	Snow	Wind	Weather
04			Calm	CAVU
05			Calm	CAVU
06	X	hard pack	Calm	CAVU
07	X	hard pack	N 10-15 k/hr	Morn. CAVU BS, poor mid-day
08			N gusty 55-80 k/hr	0/0 VB,BS
09			N gusty 80 k/hr	0/0 VB,BS
10			N 50-65 k/hr	0/0 VB,BS
11			N 50-65 k/hr	0/0 VB,BS
12			N 40-50 k/hr	BS poor
13			N 40 k/hr	BS poor
14	X	hard pack	N light wind	CAVU
15	X	hard pack	N 25-30 k/hr cleared later	slight BS, good
16	X	hard pack	N 10-15 k/hr	CAVU
17			NNW 40-50 k/hr	BS poor
18			NNW 50-65 k/hr	BS poor
19			N 25-40 k/hr	slight BS good

CAVU - Ceiling and visibility unlimited.
0/0 VB - Zero/Zero visibility.
BS - Blowing snow.

Table 2. Wager Bay denning survey - 6 March 1978.

Track Ref. #	No of bears	Age	Sex	Track front	Track rear	Remarks
A-1	2	A Juv.	F -	-	-	Track too old for proper measurement.
A-2	2	A Juv.	F -	-	-	This set of tracks looked the same as A-1, both going same direction.
A-3	2	A ?	F -	15 cm	18 cm	Positive I.D. on adult bear - old tracks - could not make out size of smaller bear, both heading east.
A-4	3	A 2 NB	F -	-	-	Den - left den approx. 2 days - tracks too old for proper measurements.
A-5	3	A	F	23 cm	27 cm	Den - bears still occupy den - no measurements of cubs' tracks.
A-6	3	A 2 NB	F -	-	-	Tracks wind blown, not accurate enough for measurements
B-1	1	A	-	16.5 cm	-	Tracks heading east.
B-2	1	A	-	-	-	Old tracks - seemed to be large bear.

continued .....

Table 2. (continued)

Track Ref. #	No of bears	Age	Sex	Track front	Track rear	Remarks
B-3	2	A A	- -	- -	- -	Tracks - possibly two adults - snow covered, but smaller track approx. 13.5-15 cm wide too big for yearling - found open seal agloo.
B-4	1	A	-	19 cm	-	Day old tracks - hard packed snow -bear had broken through seal agloo, no kill.
B-5	1	A	-	-	-	Track - too old and snow covered for proper measurement - heading toward shore
B-6	3	A A A	- - -	- - Approx. 15 cm		Tracks - day old - snow covered - Tracks crisscrossed each other.
B-7	2	A A	- -	16 cm 16.5 cm		Tracks - approx. day old - heading east.
B-8	1	A	-	6.5 cm		Tracks - day old - coming out from shore.

B-6 to B-7 - Tracks seemed to congregate in one spot, a large area approx. 30 m in circumference was messed up - in rough ice. Seal - possible I.D. - harp seal - black head - silver body with black saddle down its side.

A - Adult
Juv. - Year old or older
NB - Newborn cub

Table 3. Wager Bay denning survey - 7 March 1978.

Track Ref. #	No. of bears	Age	Sex	Track front	Track rear	Remarks
A-4						Den - measurements: 2.5 m long x 115 cm wide x 94 cm high - entrance into the den was shallow - approx .5 to 1 m
A-5	3	A 2 NB?	F -	23 cm 1.5 cm	25 cm 13 cm	Only able to measure one cub - tracks close to den - cub tracks seem to be large for NB cubs.
D-1	1	-	-	-	-	Track seen by Siksik high on ridge over a cliff - too steep an approach.
D-2	3	A 2 NB	F -	14 cm both 7.5 cm	15 cm	Tracks - fresh - heading south
D-3	-	-	-	-	-	Den - covered up - no visible tracks - blowing snow.
D-4	3	A 2 NB	F -	-	-	Bears seen by Siksik and Mimialik - possibly same bears as D-2 - going in same direction - not far apart.

continued .....

Table 3. (continued)

Track Ref. #	No. of bears	Age	Sex	Track front	Track rear	Remarks
D-5	-	-	-	-	-	Den - questionable - old diggings - covered up on a north facing slope - good drift in canyon - uncertain.

A - Adult
Juv. - Year old or older
NB - Newborn cub.

Table 4. Polar bear denning survey - 15 March 1978.

Track Ref. #	No. of bears	Age	Sex	Track front	Track rear	Remarks
E-D-5	-	-	-	-	-	This location was completely covered when re-checked.
C-1	2	A juv.		-	-*	Track - 2 days old - covered with fresh snow.
C-2	3	A 2 NB	F -	-	-*	Bears were seen on high hill or cliff - area in-accessible - possible den - unconfirmed.
C-3	2	A juv.	- -	-	-*	Fresh tracks - heading east - possibly adult female with yearling cub.
C-4	3	A 2 NB	F -	-	-*	Fresh track - coming from the N across the bay
C-5	3	A 2 NB	F	-	-*	Day old tracks - heading NE.
C-6	3	A 2 NB	F	-	-*	Fresh tracks - bears heading E.

* - No track measurements taken - measuring tape left in camp.

Table 5. Polar bear denning survey - 16 March 1978.

Track Ref. #	No. of bears	Age	Sex	Track front	Track rear	Remarks
F-1	1 & cubs?	A	F	-	-	Tracks old - no good indication of cub tracks or size. Old den - located on N side of hill - entrance covered up.
F-2	1 & cubs?	A	F	-	-	Old tracks - blown in - den on N side of hill - entrance covered up.
F-3	1 & cubs?	A	F	-	-	Same as F-2.
F-4	?					Possibly one adult and two cubs. Old tracks - closed up dens - two entrances about 1.5m apart
F-5	3	A 2 NB	F	15 cm -	20 cm -	Bears in den - tracks too close to entrance.
F-6	3	A 2 NB	F	-	-	Den covered up - tracks around entrance blown in. No measurements.
F-7	3? (2)	A 1 or 2 NB	F	-	-	Den covered up - tracks hard to distinguish whether one or two cubs.

continued .....

Table 5. (continued)

Track Ref. #	No. of bears	Age	Sex	Track front	Track rear	Remarks
F-8	?					Temporary den? - Tracks blown over.
F-9	3	A 2 NB	F -	15 cm -	20 cm -	Freshly open den - bears still in - no measure-ments of cubs - too close to den
F-10	?					Old den covered up - too danger-ous to check as it was only 20 m from other den.
F-11	3	A 2 NB	F -	14 cm 5 cm	16.5 cm 7.5 cm	Fresh tracks - heading east.
F-12	3	A 2 NB	F -	-	-	Tracks - 2 days old - blown in - old den site, covered up.
F-13	3	-	-	-	-	Old den - closed up -snow covered too much to de-termine number of bears.
G-1	3	A 2 NB	F -	15 cm 7 cm	-	Fresh tracks - heading north - tracks were about 6 km E of camp.
D-3	2	A 1 NB	F -	-	-	Rechecked this site - tracks were found going up over hill - distinguishable but not for measurements.

continued .....

Table 5. (continued)

Track Ref. #	No. of bears	Age	Sex	Track front	Track rear	Remarks
G-2	?	-	-	-	-	Old den - tracks but could not distinguish how many - at least one adult but no estimate on cubs
G-3	3	A 2 NB	F	19 cm 7.5 cm	25.5 cm	Den - female and cubs were outside of den - Siksik and Mimialik found them in creek - female charged the men as one cub was still outside den - once left alone, female stayed in den.
G-4	3	A 2 NB	F	-	-	Looked like a night den - 1.5m deep x 7.6 cm H - possibly maternity den, was lower down hill - steep bank - tracks were weathered out too badly for measurements.
G-5	?	-	-	-	-	Possible old den - south facing large drift - no tracks distinguishable.

A - Adult.
Juv. - Year old or older.
NB - Newborn cub.

Table 6. Polar bear denning survey - 17 March 1978.

Track Ref. #	No. of bears	Age	Sex	Track front	Track rear	Remarks
H-1	3	A 2 NB	F	16.5 cm 7.5 cm	- -	Fresh tracks - near what looked like an overnight bed on river bank.
H-2	3	A 2 NB	F	-	-	Tracks blown in - unable to measure - temporary sleeping den in bank.
I-2	3	A 2 NB	F	16.5 cm 7.5 cm	- -	Fairly fresh tracks - heading east.
G-3						This bear, seen on previous day, was still in her den.

A - Adult.
Juv. - Year old or older.
NB - Newborn cub.

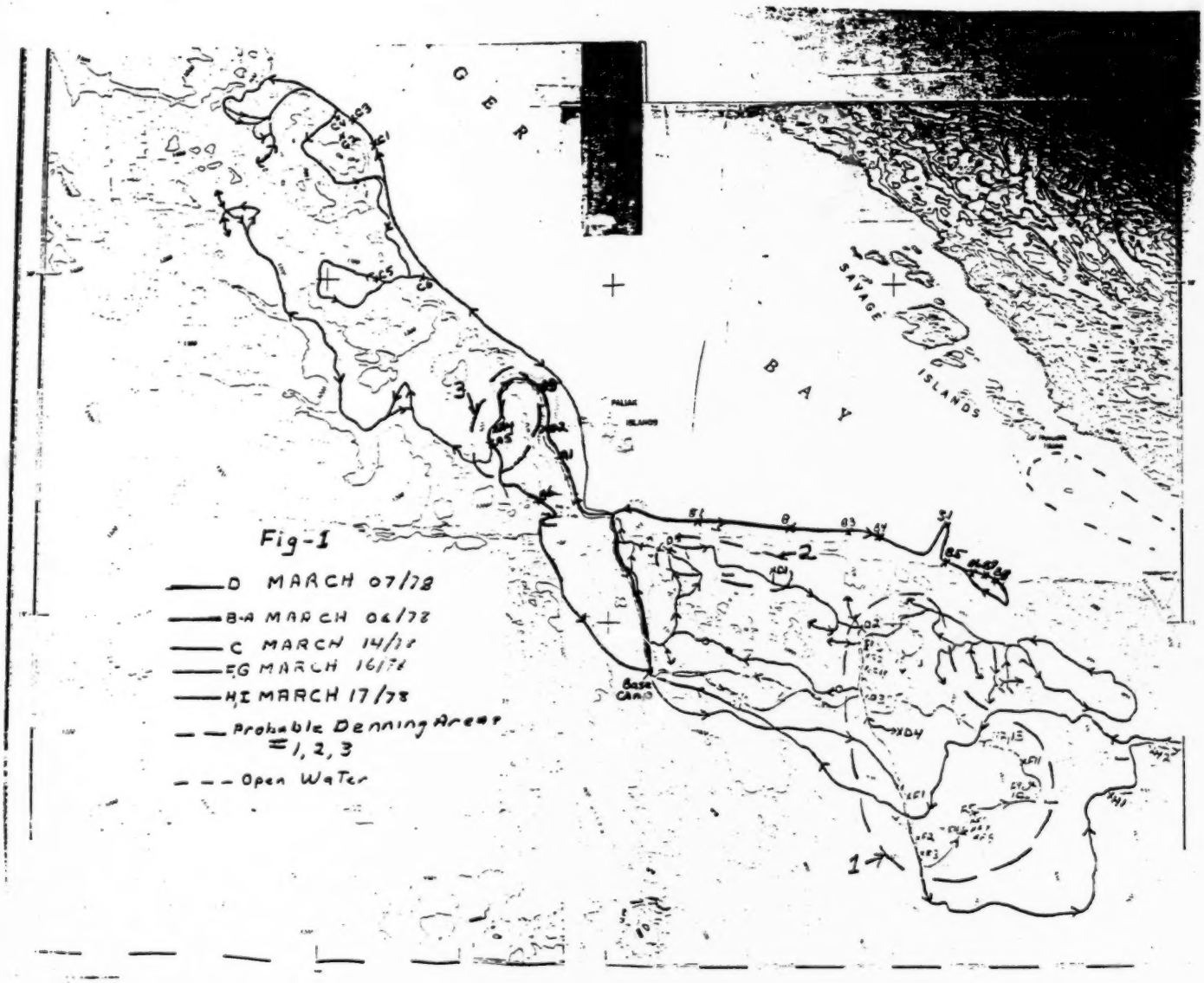

Figure 1. Routes and sightings of 1978 Wager Bay Polar Bear denning survey.

vacated and we took measurements of the inside (Table 3) and the other two were vacant with covered up entrances. Tracks could be found outside these dens but were usually indistinguishable. Most of the signs of moving single bears were on the ice generally in an easterly direction. The females with newborn cubs seemed to be staying well inland or heading east.

There was a large expanse of open water and broken ice at the mouth or narrows of Wager Bay. Open water extended west as far as 88°15'W (Figure 1). On the first day on the bay I observed a seal about 1.5 km from the open water.

On 15 March one team (Ungungai and Nattar) was able to travel along the southwest shore of Wager Bay as far west as 89°40'W (Figure 1). During this trip they observed a female and two newborn cubs (Table 4, Figure 1) on a high, inaccessable hill. The rest of the sightings were of tracks, all females with one or two cubs. Of these, two females were accompanied by yearling or 1 year old bears (Table 4). One set of tracks of a female and two newborn cubs had come from across the north side of the bay. The rest of the bears seemed to be heading in an easterly direction.

On 15 March, I travelled to a small area of ravines and hills approximately 12 km north of camp (Figure 1). I rechecked a portion of the trail travelled 7 March and rechecked the signting of D-5. This sighting was now completely covered with new snow. I saw no new signs or tracks of moving or denning bears.

The best results were obtained on 16 March. Both teams travelled east of the base camp then split up in different directions. Table 5 shows the numerous sightings of bear tracks and dens. This area seems to be a major denning area (Figure 1). It is spotted with numerous lakes and hills. The height of the hills ranged from 250-350 m with numerous creek valleys, lakes and ravines. This terrain provides a good catch basin for snow, resulting in long deep drifts which make ideal denning locations.

On 17 March, the two teams again headed east of the base camp to do an area farther east than that surveyed on March 16. Only three sets of tracks were seen. One female and two newborn cub tracks were observed heading east (I-1, Table 6). Two other female tracks with two newborn cub tracks were observed at H1 and H2 (Table 6,

Figure 1). I re-sighted G-3 from March 16 and the female and cubs were still in their den. Some of this area to the extreme east of the area surveyed (Figure 1) seemed to be some ideal habitat for bear dens. The Inuit assistants felt that if there had been any open dens before the storm they would have been covered up by the time we surveyed the area.

CONCLUSION

I have designated on Figure 1 the areas I suspect to be denning areas from the information gathered during this survey. Area #1 seems to be the largest denning area. I believe that valuable time was lost between 7 and 15 March when many females were coming out of their dens prior to the storm. High winds and drifting snow later covered these dens.

RECOMMENDATIONS

1. A survey should be undertaken on the northeast side of Wager Bay probably in the Douglas Harbour area. The area east and west of Douglas Harbour has some interesting terrain and a survey should be organized for March 1979.

2. A base camp should be set up on Alda Lake just west of Douglas Harbour. That area would provide a good landing strip and water supply.

3. Survey efforts should be concentrated in an area much the same as this year, as long as weather permits.

4. A four man unit should be used to allow two teams to survey the area.

ACKNOWLEDGEMENTS

I thank the many people who helped on this project. With the help of Hugh Ungungai, Assistant Fish and Wildlife Officer of Baker Lake, Luke Siksik and Joseph Nattar of Rankin Inlet, and Leo Mimialik of Chesterfield Inlet, a comfortable camp was erected and a good many kilometres were covered over the study area.

I thank Abe Heibert, Lambair pilot for transporting us in and out of our site under some poor conditions.

I thank Ed Bowden and Sandy Wortman for maintaining radio scheds and obtaining repair parts and supplies.

APPENDIX I: Additional information on polar bears.

Joseph Nattar, spent approximately 3 to 4 years in the Wager Bay area about 20 to 25 years ago. During his stay in the Wager Bay area, he had seen only one polar bear. He was very surprised to see such a concentration of bears around the area now.

When Mikkituk Bruce of Coral Harbour made a trip to Wager Bay in 1948 to acquire a wife, he only saw one bear in that area.

Last August, Donat Milortuk from Repulse Bay, travelled by canoe from Repulse Bay to Rankin Inlet. He went into the mouth of Wager Bay and down along the coast to Rankin and reported the following sightings. In the mouth of Wager Bay on the north side on some small islands, he saw two bears on separate islands. Just east of Handkerchief Inlet (25 km), on the south side of the bay, he saw one bear in a long inlet. At Cape Dobbs and Nuvak Point he saw two and four bears respectively. There was fog until they reached Kamarvik Creek, where they saw two bears, and another one about 1.5 km south of the creek. At Mistake Creek where there are some small islands, they saw a total of five bears on separate

islands. At Whale Point or Cape Fullerton they saw another two bears and one at Daly Bay Islands. No bears were seen after they swung out from the coast. We do not know the sex or size of these bears but they are an indication of a large population in this area.

Appendix II: Expenditures for 1978 Wager Bay, Polar bear denning survey.

Transportation:	5 Twin Otter trips - haul in and out. 1 Beaver trip - re-supply, parts.	$6,400.00
Supplies:		464.46
Gas, oil and fuel oil:		340.00
Rentals:		400.00
Casual Wages:		2,208.60
		$9,813.06